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Patent Claims

1. A device for controlling an engine (1) and/or transmission (2) having a control device (3, 4, 24, 25) which is arranged remotely from the engine/transmission (1, 2) and which provides the open-loop and closed-loop control algorithms, and a unit which is electrically conductively connected directly to a plurality of sensors (12, 18) and which is attached to the engine/transmission (1, 2), wherein the unit has an A/D converter for converting the sensor signals originating from the sensors (12, 18) into digital sensor signals, and the digital sensor signals are converted into data bus signals by means of a signal converter and fed into a data bus (8, 20, 21) by means of a data bus transceiver unit (10, 11, 15, 16) in order to be able to communicate via the data bus (8, 20, 21) between the unit and the control device (3, 4, 24, 25) which is arranged remotely therefrom, characterized in that a plurality of control devices (3, 4, 24, 25) are interconnected to one another via a first data bus (5) and are each provided with a uniform data bus transceiver unit (10, 11, 15, 16) to which an assembly data bus (8, 20, 21) is additionally connected, in that the unit is embodied as an assembly-specific sensor/actuator interface (9, 17, 22, 23) with a plurality of parallel connections for the sensors (12, 18) and a connection for the assembly data bus (8, 20, 21), in that a signal converter is provided for converting the digital sensor signals of a plurality of sensors (12, 18) into the data bus signal so that in embodiments of the device for different assembly variants with different sensors (12, 18) the same control device (3, 4, 24, 25) can be used without hardware modification of its sensor connection, in that

the signal converter converts the sensor signals directly into the data bus signals without intermediate connection of a calculating means corresponding to an open-loop/closed-loop control algorithm, and in that the sensor/actuator interface (9, 17, 22, 23) is designed for series traffic means with a plurality of engine/transmission variants in at least two embodiments which differ in the number of sensor connections provided.

2. The device as claimed in claim 1, characterized in that actuators (13, 19) can be additionally connected to the sensor/actuator interface (9, 17, 22, 23), wherein the control data which is input via the assembly data bus (8, 20, 21), for the actuator or actuators (13, 19) is converted into digital control data for the individual actuator (13 or 19) so that the actuators (13, 19) can be actuated via the assigned sensor/actuator connections.

3. The device as claimed in claim 1, characterized in that the sensor/actuator interface (9, 17, 22, 23) carries out checking of the sensor signals with respect to the predefined value range and/or standardization of the signals to a predefined numerical range.

4. The device as claimed in claim 1 or 2, characterized in that the sensor/actuator interface (9, 17, 22, 23) has a storage means in which the digital sensor signals can be buffered, and in that the data bus transceiver unit (10, 11, 15, 16) can read out the digital sensor signals from the storage means and converts them into data bus signals.

5. The device as claimed in one of claims 1 to 4, characterized in that the same data bus protocol is provided for use with a plurality of different

embodiments of the device with a different number of sensors/actuators (12, 13, 18, 19) in comparison with the control device (3, 4, 24, 25) which is arranged remotely.

6. The device as claimed in one of claims 1 to 5, characterized in that for certain production vehicles some of the sensor/actuator connections of the sensor/actuator interface (9, 17, 22, 23) are not assigned.